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bcc

Subject avian RA questions

Hey
Below are some questions and sub questions that I recommend presenting to selected expert(s). I limited it to toxicological as I was left with the impression that SRC will attempt to answer any ecological, field sampling type questions. I don't think this is an exhaustive list but it made me tired (ha). I realize that we can answer some of these questions with a fair amount of certainty, but hopefully they will spark some thought and conversation with the expert. Additions/deletions are welcome

A couple things from yesterdays meeting that I forgot to mention.

1)Many birds build mud nests (barn swallows may be most common below). This is definitely a pathway to consider. I don't know if they, or other mud nesters, are present onsite, but exposure could be high.

2) I believe the poultry industry has published some info on the effects of particulates on avian species in their confined animal operations. Possibly some secondary stressor effects.

Questions
Where in the lung/air-sac system would you anticipate fibers/particles to be deposited?
-What is the level of difficulty in dissecting the lung/air-sac system...is this routine in a vet pathology lab?
-What level of specialization would be needed to perform histological examination of a lung/air-sac system?

What effects should we anticipate from asbestos, particulates, fibers?

How would the effects be manifested (from molecular to population)?
-Should we anticipate similar effects as seen in mammalian lungs?
-Is there a significant inflammatory response in the lung?air-sacs?
-How would air-flow be altered in the lung/air-sac system if some part were to be become chronically inflamed/fibrotic etc.(it my understanding that much of the routing and movement of is dependent upon pressure gradients that act almost as valves...seems like a sensitive process to me)?

-One of the effects seen in mammalian systems is a loss of elasticity, due to fibrosis, in the affected tissues. Since the lung portion of the lung/air-sac system is rigid, would the air-sac portion be susceptible to fibrosis and inflammation? What are other sensitive components/regions of the lung/air-sac system?
-Would you anticipate any increased susceptibility to secondary stressors associated with effects from asbestos?
-Are there avian species that are particularly susceptible to respiratory disease?

How should we measure the effects (from molecular to population)?
-Any thoughts on measuring organism level fitness to capture these effects (blood O2 saturation, gas exchange efficiency, behavioral, gross physiological)?
-Are there biomarkers (exposure and/or effect) used in other organisms, including humans, that may be applicable to this effort?

For this type of assessment, what are the pros and cons of field collected birds vs bird boxes